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U.S. DEPARTMENT OF TRANSPORTATION
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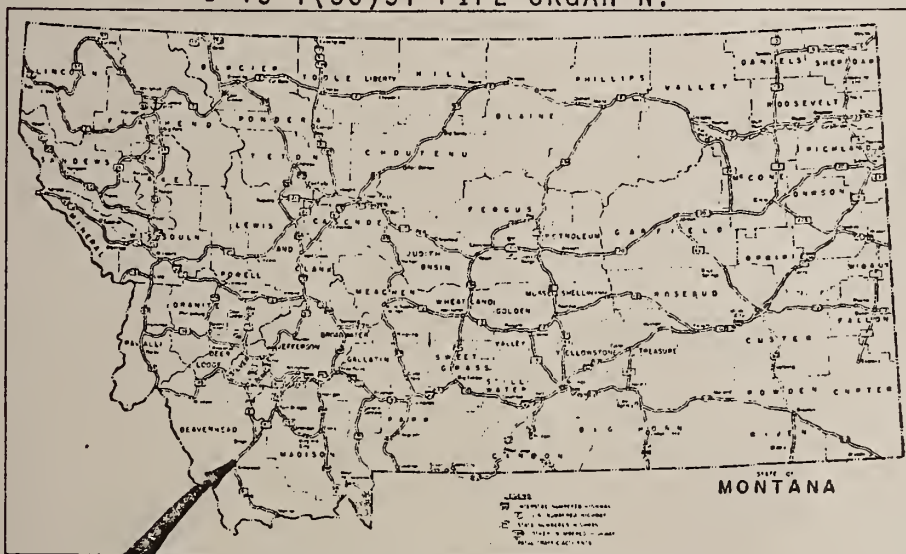
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STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
DRAFT
ENVIRONMENTAL / SECTION 4 (f) STATEMENT
Administrative Action
FOR

I 15-1(32)37 ARMSTEAD N. & S.

I 15-1(31)46 PIPE ORGAN N. & S.

I 15-1(36)51 PIPE ORGAN N.



THIS HIGHWAY IMPROVEMENT IS PROPOSED FOR FUNDING UNDER TITLE 23, U.S.C. THIS STATEMENT FOR THE IMPROVEMENT WAS DEVELOPED IN CONSULTATION WITH THE FEDERAL HIGHWAY ADMINISTRATION AND IS SUBMITTED PURSUANT TO:

42 U.S.C. & 49 U.S.C.
4332(2)(C) 1653(f)

Date 7-17-73 H.J. Anderson, Director
of Highways

By Jack R. Baskett
Administrator, Engineering
Division

APPROVED AND ADOPTED BY F.H.W.A.

Date 8/22/73 By W. Stewart
F.H.W.A. Division Engineer

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SUMMARY SHEET

I. TYPE OF ACTION

- ☒ Administrative
- ☒ Draft
- ☐ Environmental Statement
- ☒ Combination Environmental/Section 4(f) Statement
- ☐ Legislative
- ☐ Final

II. PROJECT DESCRIPTION

The Armstead North and South, Pipe Organ North and South and the Pipe Organ North projects begin about 0.5 mile north of Red Rock Interchange and extend northerly approximately 19.9 miles to a point which is about 1.8 miles north of the Barretts Interchange. These projects propose to add a new pair of southbound lanes parallel to the existing two-lane interstate highway projects. The new southbound roadway will have two 12-foot wide driving lanes, ten foot outside shoulders and four foot inside shoulders. These projects will have full control of access and will include frontage roads, access roads and modifications to existing interchanges, as well as one new interchange.

III. ENVIRONMENTAL IMPACTS

These projects will provide a fast, safe and efficient transportation facility for the traveling public. A minor amount of new right-of-way will be required, but for the most part, these projects will use existing right-of-way. Access to the Interstate will be controlled, but local access will be perpetuated by means of frontage roads, access trails and interchanges. No families will be displaced. The existing character of the area should not be signifi-

cantly altered due to these projects except in the area of the Pipe Organ Landslide, since the new two-lanes are being added adjacent to the existing highway. The Pipe Organ Landslide area will be altered by the excavation of the face of the bluff west of the slide area. Presplit blasting should help to reduce overbreakage of rock on the face of the bluff. Talus from the base of the bluff will be removed. The rock buttress will also be visible in this area, but this is unavoidable since the buttress is necessary to stabilize the landslide. River channel changes in this area are necessary to provide room for the four-lane Interstate highway.

Some fish life will be affected by the construction, but compliance by the Contractor with the pollution requirements of the Montana Department of Highways Standard Specifications, Montana State Board of Health regulations and contract special provisions will help to keep water pollution to a minimum.

IV. ALTERNATIVES

One alternative would be to find a new route for this project, but this would entail purchasing a considerable amount of right-of-way that would take large amounts of land out of production. This would be wasteful and uneconomical since there is an existing two-lane interstate highway in the area with right-of-way available.

In the area of the Pipe Organ Landslide, consideration was given to an alternate alignment running behind the bluff through the saddle in order to avoid excavation of the bluff and channel changes in the Beaverhead River. But, after an investigation by geologists

revealing a soft talc layer in the area, this alternate was judged undesirable because of the risk and expense of the proposed cut.

Another alternate is not to build these projects. This would not comply with the National Highway Defense Act and would leave a gap in the Interstate Highway system.

V. SELECTED FEDERAL, STATE AND LOCAL AGENCIES AND OTHER
ORGANIZATIONS FROM WHICH COMMENTS HAVE BEEN REQUESTED

County Commission
Beaverhead County
Dillon, Montana 59725

U.S. Forest Service
Federal Building
Missoula, Montana 59801

Rear Admiral J.J. McClelland
Cmdr. 13th District U.S. Coast Guard
618 2nd Avenue
Seattle, Washington 98104

Office of Civil Defense
Federal Regional Center
Bothell, Washington 98011

Corps of Engineers
Missouri River Division
U.S. Army Engineer Division,
Missouri River
P.O. Box 10 (Downtown Station)
Omaha, Nebraska 68101

Department of Health, Education
and Welfare
9017 Federal Office Building
19th and Stout Streets
Denver, Colorado 80202

Department of Housing and
Urban Development
Regional Administrator
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19th and Stout Streets
Denver, Colorado 80202

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Sam W. Mitchell Building
Helena, Montana 59601 (2 copies)

Honorable Raymond Lynch
Mayor
City of Dillon
Dillon, Montana 59725

School Board
Dillon, Montana 59725

Agricultural Stabilization
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Postmaster
Dillon, Montana 59725

Director
State Department of Health
Helena, Montana 59601

Department of Planning &
Economic Development
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Environmental Quality Council
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Room 366 Capitol Bldg.
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Director
Statewide Archaeological Survey
University of Montana
Missoula, Montana 59801

District Engineer
Union Pacific Railroad Company
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Portland, Oregon 97209

Economic Development Administration
Regional Director
Rocky Mountain Region Office
Suite 505 Title Building
909 17th Street
Denver, Colorado 80202

Governor's Office
Capitol Building
Helena, Montana 59601

Environmental Protection Agency
Room 916 Lincoln Tower
1860 Lincoln Street
Denver, Colorado 80203 (5 copies)

Ass't. Secretary
Program Policy Director
Environmental Project Review
Dept. of Interior
Washington, D.C. 20240 (12 copies)

Office of Emergency Preparedness
Region 8 Office
7200 W. Alameda Avenue
Denver, Colorado 80226

Dept. of Agriculture
Dr. T.C. Byerly
Office of Secretary
Washington, D.C. 20250

Documents Department
Montana State Library
930 East Lyndale
Helena, Montana 59601
(20 copies)

Geological Survey
Water Resources Division
Federal Center
Denver, Colorado 80225

Soil Conservation Service
4930 9th Ave. South
Great Falls, Montana 59401

U.S. Geological Survey
Federal Building
Helena, Montana 59601

Federal Water Quality
Administration
Room 501-Pittcock Block
Portland, Oregon 97205

Montana Dept. of Fish & Game
Division of Environment & Information
Sam W. Mitchell Building
Helena, Montana 59601 (2 copies)

Council of Natural Resources and
Development
Atten: Richard E. Mayer
Sam W. Mitchell Building
Helena, Montana 59601

Montana Aeronautics Commission
P.O. Box 1698
Helena, Montana 59601

VI. DATE DRAFT STATEMENT MADE AVAILABLE TO C.E.Q.

July 16, 1973

DRAFT STATEMENT

The following is the Draft Environmental/Section 4(f) Statement for Projects I-15-1(32)37 Armstead North and South, I-15-1(31)46 Pipe Organ North and South and I-15-1(36)51 Pipe Organ North.

I. PURPOSE

The I-15 Armstead North and South, Pipe Organ North and South and the Pipe Organ North projects are part of the system of Interstate and Defense highways as delineated under the Highway Act of 1956. These projects were originally constructed as two-lane interstate highways in the time period of 1962 through 1965, except for a 1.8 mile segment on the Pipe Organ North project which was not constructed. This segment was not completed due to the Pipe Organ Landslide. The purpose of this new project is to complete this portion of the four-lane Interstate highway system. The purpose of the Interstate system is to provide a modern highway system to serve the ground transportation needs of the Nation as a whole with a safe, fast and efficient facility.

II. DESCRIPTION OF PROJECT

The Armstead North and South, Pipe Organ North and South and the Pipe Organ North projects comprise a continuous segment of 19.9 miles of Interstate highway. The design of these projects adds a new pair of southbound lanes parallel to the existing two-lane projects.

These projects are designed to current Interstate Standards. The two new southbound lanes will each have 12 foot wide driving lanes, 10 foot outside shoulders and 4 foot inside shoulders. Grades

will not exceed 4% and curves will be no greater than 30° 30'. Design speed is 70 M.P.H.

Traffic Data for these projects is as follows: (ADT=Avg. Daily Traffic; DHV=Design Hourly Volume; D= Directional Distribution; T=Trucks; V=Design Speed)

<u>Armstead N&S</u>	<u>Pipe Organ N&S</u>	<u>Pipe Organ No.</u>
ADT (1965) 697	786	832
ADT (1992) 2300	2600	2750
DHV ----- 290	330	350
D 55%-45%	55%-45%	55%-45%
T 19.6%	19.6%	19.6%
V 70 M.P.H.	70 M.P.H.	70 M.P.H.

ARMSTEAD NORTH AND SOUTH

The Armstead North and South project begins at Station 136+00 about 0.5 mile north of the Red Rock Interchange and extends north-erly approximately 8.0 miles to Station 560+18.0 about 1.5 miles north of the Clark Canyon Dam. The proposed horizontal separation of roadways varies between 70 feet, 100 feet and 125 feet center to center. There is a separation of vertical alignment with the new southbound lanes lower in elevation than the northbound lanes from Station 185+00 to Station 415+00, or about 4.4 miles.

Horse Prairie Interchange at Station 483+00, is located adjacent to the Clark Canyon Dam. This interchange will be modified to accommodate the new southbound lanes. The existing bridge will be length-ened. Two ramps and the access road to the adjacent Recreation Area will be relocated. Some embankment for the relocated ramps and recrea-tion road will be constructed on top of part of Clark Canyon Dam, but this construction will not disturb the dam.

A new dozer trail will provide access on the right from Station 396+50 to Station 483+00, (Horse Prairie Interchange). The existing trail that extends from the Horse Prairie Interchange northerly to Station 557+75 on the right of the Interstate, will be upgraded to a 24 foot graveled road.

The prestressed concrete bridges with 42.0 foot roadways are designed at Station 166+50 (Red Rock River), Station 184+00 (County Road) and Station 509+50 (Beaverhead River). At Station 483+00, Horse Prairie Interchange, the 24 foot wide roadway structure is to be extended to accomodate the new two lanes.

Access will be controlled throughout the length of the project, which necessitates the elimination of one atgrade approach. Local traffic will be served by the Horse Prairie Interchange, Red Rock Interchange and new access trail and frontage road. Drainage, irrigation and access facilities have been designed to perpetuate existing drainage, irrigation and local vehicular travel.

Right-of-way was purchased for the original two-lane construction. There will be a minor amount of additional right-of-way required for the construction of the new two lanes.

PIPE ORGAN NORTH AND SOUTH

The Pipe Organ North and South project begins about 1.5 miles north of the Clark Canyon Dam and extends northerly approximately 5.1 miles to Station 829+06.3.

The horizontal separation of roadways is 70 feet with the new two-lanes parallel to the existing two-lanes. The vertical profile is approximately the same as the existing two-lanes.

A new frontage road will extend from Station 557+75 to Station 562+00 on the right of the Interstate and then cross under the Interstate and extend northerly on the left to Station 710+85.7. At this point it crosses under the Interstate again and extends northerly on the right to the end of the project at Station 829+06.3. A new access trail will be provided on the left of the Interstate from Station 766+00 to Station 829+06.3. Access will be controlled throughout the length of the project which necessitates the elimination of four at-grade approaches. Local access is perpetuated by the frontage road and access trail which by means of other frontage roads, connect to the Horse Prairie Interchange to the south and the Grasshopper Creek Interchange to the north.

Drainage and irrigation facilities have been designed to perpetuate the existing drainage and irrigation patterns. New prestressed concrete bridges are to be located at Station 562+00, (Beaverhead River) and Station 765+00 mainline and frontage road (Beaverhead River).

A boat ramp for small recreation boats will be provided in the Beaverhead river bank right of Station 768+00, as was suggested by the Montana Department of Fish and Game.

Right-of-way was purchased for the original two-lane construction. There will be a minor amount of additional right-of-way required for the construction of the additional two lanes.

PIPE ORGAN NORTH

The Pipe Organ North and South project begins about 6.6 miles north of the Clark Canyon Dam at Station 829+06.3 and extends north-erly approximately 6.8 miles to Station 325+24.8, which is about 1.8 miles north of the Barretts Interchange.

This is a two-lane add project except for about 1.8 mile section between Station 815+00 and Station 910+00 which will be a new four-lane roadway construction. This project also involves construction of a buttress and keyway to help stabilize the Pipe Organ Landslide.

The horizontal separation of roadways is 70 feet except for a 2.1 mile section between Station 860+00 and Station 970+00 which will have a separation of approximately 60 feet. The vertical profile is approximately the same as the existing two-lanes.

A new Interchange will be located at Station 914+00 and labeled, "Grasshopper Creek Interchange". The existing Barretts Interchange at Station 417+00 will be modified to accomodate the new southbound lanes with the addition of a new bridge structure and realignment of portions of two ramps. A new rest area will be located at Station 980+00 for northbound traffic. The ramps of the existing rest area at Station 468+00 serving the southbound traffic will be modified to conform to the addition of the new southbound lanes, but all other facilities within this rest area will be unaffected by this project.

A new frontage road will extend from the beginning of project Station 829+06.3 on the right of the Interstate to the Grasshopper Creek Interchange at Station 914+00. A new access trail will extend from Station 829+06 where it will pass through a vehicular underpass and connect to the new frontage road on the right of the Interstate. The existing trail on the right of the interstate between Station 920+00 and Station 1015+00 will be improved by grading.

New prestressed concrete bridges are designed at Station 879+00 (frontage road over the Beaverhead River), Station 913+00 (two bridges on the interstate over the crossroad, one ramp bridge over the Beaverhead River), Station 921+00 (interstate over the Beaverhead River), Station 937+00 (interstate over the Beaverhead River), Station 423+00 (Barretts Interchange).

Access will be controlled throughout the length of the project which necessitates the elimination of two at-grade approaches. Local traffic will be served by the Grasshopper Creek Interchange, Barretts Interchange, frontage roads and access trails. Drainage, irrigation and access facilities have been designed to perpetuate existing drainage, irrigation and local vehicular travel.

Right-of-way was purchased for the original two-lane construction. There will be a minor amount of additional right-of-way required for the construction of this project.

A boat ramp for small recreational boats, a fishing access trail and parking area will be provided adjacent to the Beaverhead River, left of Station 937+00, as was suggested by the Montana Department of Fish and Game.

PIPE ORGAN LANDSLIDE

The existing Pipe Organ Landslide involves a portion of the mountainside extending back from the Union Pacific Railroad tracks about 2,000 feet uphill and about 1,200 feet (Station 885+00 to Station 897+00) along the tracks. Movement of the slide began in 1965 when a cut was made for relocation of the railroad. The original plan was to move the Union Pacific Railroad to the east, which would allow for construction of a river channel change, the interstate highway and a frontage road. The railroad line change never became a reality because of the landslide. Since August 1967, when the slide was stabilized by pumping, there has been no downslope movement, proving the effectiveness of drainage in stabilizing the landslide. The drainage has been improved since by gravity drains. The gravity drainage wells were drilled in 1970, and the pumps removed. The water table in the slide is three to four feet lower than it was while the wells were being pumped. In order to provide a slide safety factor acceptable to the railroad, a rock buttress and keyway is proposed with this project. The railroad will not be relocated as was originally planned. This leaves a narrow corridor between the railroad, Beaverhead River and the bluff to the west through which to build the four-lane interstate necessitating a channel change in the Beaverhead River as well as a considerable amount of excavation in the quartzite bluff to the west. The quartzite rock from the bluff will be used to build the buttress and keyway, the purpose of which is to stabilize the Pipe Organ Landslide. The proposed buttress and keyway will be located 30 feet east of the existing railroad track and will run parallel to the tracks between Stations 883+00 and 899+00. The buttress will be approximately 50 feet high and 1,600 feet

long. The new frontage road is proposed to be located on the right of the Interstate and across the top of the buttress.

III. DESCRIPTION OF EXISTING ENVIRONMENT

A. Human Resources

Beaverhead County has a total population of 8,147, 1970 Census. The city of Dillon is the County Seat with a population of 4,548, also 1970 Census. The total population of Beaverhead County has increased 993 people in the last decade. Of this, only 3.3% was in the rural area. The 1969 Census showed the average per capita income of Beaverhead County to be \$2,640 as compared at that time to \$2,943 state wide. Unemployment rate in Beaverhead County is reported at 7 1/2%.

B. Physiography and Geology

The Interstate alignment traverses near the west edge of a gently westerly sloping gravel pediment from the railroad siding of Red Rock north past Armstead to Horse Prairie Interchange at Clark Canyon Dam. In this portion of the project there is one predominant drainage crossing of Red Rock River which flows into the upper end of the man made lake formed by the Clark Canyon Dam. A few miles north of Red Rock River, the roadway skirts the high water line of the lake before reaching the interchange. Shallow soils overlies the pediment gravels.

After leaving Horse Prairie Interchange the alignment basically follows the canyon flood plain of the meandering Beaverhead River, crossing the main channel of the river five times before emerging from the canyon at Barretts. Here the flood plain widens considerably. In general shallow soils overlies river gravels in the narrow flood plains.

There are several constricted zones in the canyon part of the alignment.

At Clark Canyon about a mile and a half north of the dam, a stable ancient slide has forced the river eastward against bluffs of the Beaverhead Formation. In this area the roadway crosses the top of the slide onto a bridge across the river at Station 560 and returns to the narrow flood plain.

Continuing on the flood plain the river is crossed again at Station 765 where the roadway narrowly misses the scenic "Pipe Organ" rock formation of columnar bassalt flow that juts into the flood plain from the west.

A mile farther north at Dalys the river, railroad, and highway are squeezed between a massive Quadrant quartzite bluff on the west and an active massive landslide of soft Tertiary formations. The slide bears the name "Pipe Organ Slide".

A short distance farther north, beyond two more river crossings, another large slide mass lies west of the right-of-way just beyond Grasshopper Creek. North of this slide the flood plain widens and is flanked by volcanics accompanied by hot springs found east of the river. Short zones of ash members of the volcanics are crossed by the roadway before the alignment emerges from the canyon onto the wide flood plain at Barretts. From this point to the end of the project the alignment traverses the flood plain of the Beaverhead River.

C. Land Use

The total land area in Beaverhead County is 3,552,640 acres, of which 47.6% represents farms and ranches. Agriculture is the main

industry followed by mining, recreation and lumbering. All agriculture is livestock oriented with the exception of about 5,000 acres of winter wheat, about 400 acres of seed potatoes and about 2,000 acres of malting barley. Alternatives to the present land use are few. 38.5% of the total county area, is National Forest, 31.0% Bureau of Land Management, 9.4% State owned land, 0.2% water area, 0.1% Bureau of Reclamation, 0.9% Red Rock Land Refuge, with the remainder 19.9% being tax assessed lands and roadways.

D. Fish and Wildlife

The Beaverhead River is famous for its excellent Brown Trout fishing. Rainbow Trout are also taken by fishermen. Clark Canyon Reservoir offers good fishing as well as boating, swimming, water skiing, etc. Duck and goose hunting along the Beaverhead River and its tributaries and Clark Canyon Reservoir is considered very good. The wooded areas along the Beaverhead River consists of Snowberry shrubs, Cottonwood trees and Willows, which harbor both Whitetail deer and Mule deer.

E. Vegetation Resources

The valley consists predominately of sub-irrigated hay and pasture land, the water table averaging two to three feet below natural ground. The area along the Beaverhead River is wooded with Snowberry shrubs, Cottonwood trees and Willows.

F. Climate

The climate from one end of this valley to the other varies greatly. In the Lima area on the southerly end of the valley, there is an average of 87 frost free days of growing season. On the northerly end of this project, or the Dillon area, there is about 113 frost

free days of growing season. The average July temperature of the Dillon area is +61⁰ and in January +24⁰. Sub-zero temperatures for short durations are frequent during the winter months. The average precipitation varies from 11.6 inches in the Dillon area to 9.3 inches in the Lima area. Monthly distribution of rainfall varies, but the largest portion falls during May, June and July. Snowfall is relatively light in this valley.

G. Transportation

Public transportation in the Beaverhead Valley is provided by the Union Pacific Railroad running one freight train daily each way between Salt Lake City, Utah and Butte, Montana; however, the Union Pacific Railroad does not offer passenger service. Intermountain Transportation Bus Lines offers passenger service through Dillon between Salt Lake City, Utah and Butte, Montana. There are three scheduled trips daily each direction. There are no commercial airlines serving the area, although a county owned airport three miles east of Dillon serves light aircraft.

H. Utilities

Montana Power and the Vigilante Electrical Cooperative serve all power and natural gas needs in this area.

I. Medical Facilities

This area is served by a new hospital, "Barretts Memorial Hospital". It is staffed by four resident Physician-Surgeons and four registered nurses. Ambulance service is offered by a private firm in Dillon. There is also one Veterinary Hospital located in Dillon.

J. Educational Facilities

Beaverhead County High School is located in Dillon and has an enrollment of 835 students.

Western Montana College is also located in Dillon and has an enrollment of from 800 to 900 students.

K. Scenic Areas and Points of Interest

The Lewis and Clark Expedition traveled through the Beaverhead River Valley in 1805. Many of the scenic areas and natural phenomena written about in their journal have since become historical points of interest. The old Sacajawea Rock was relocated to the recreation area adjacent to Horse Prairie Interchange.

South of Dillon along the present highway, are found two "hot water" waterfalls left of Station 980+00. One is visible from the highway; the other is not. The temperature of this water stays very close to 72⁰. The many stages of the falls vary in height from two to thirty feet.

The Pipe Organ Rock formation (so named because of its resemblance to the pipes on a pipe organ) is located left of the Interstate at Station 770+00.

The Clark Canyon Rock Shelters are located left of Station 867+00. The early historic pictographs and possible Indian artifacts found in the shelters are being investigated and studied by the University of Montana, Department of Anthropology and are recorded as Arch. Survey No. 24 BE 1005. The director of Statewide Archeological Survey has indicated by letter that highway construction may proceed without endangering unsalvaged or unchecked antiquities. Special

provisions for this project state that no work will be accomplished in the area of this site until the University of Montana Anthropology Department has been notified and given a reasonable time to have a representative present during construction.

The first ranching in this area was established in 1865, leaving its mark of historical interest.

IV. EVALUATION OF ENVIRONMENTAL IMPACTS

A. Environmental Impact of the Proposed Action

The existing two-lane I-15 highway traverses the Beaverhead Valley and parallels the railroad and Beaverhead River. This project proposes to add two more lanes of highway to the existing highway in order to help complete the Interstate System of Highways. There will be a minor amount of new right-of-way required. The access to the Interstate will be controlled, but local access will be perpetuated by means of frontage roads, access trails and interchanges. There will be little alteration to the existing character of the area except in the area of the Pipe Organ Landslide.

There will be no displacement or relocation of families. The project will provide increased safety and speed, thus decreasing travel time for motorists driving to and from work and church in the area. School buses will also benefit from these improved features.

An increase in employment may be expected during the construction period.

The vertical profile of the new two-lanes will be approximately the same as the existing highway, except in the area of the Clark

Canyon Reservoir. In this approximate 4.4 mile section, the profile of the new two-lanes will be lowered in order to blend with the cross slope of the existing terrain, reduce the height of fills, and to give the northbound traffic a good panoramic view of the Clark Canyon Reservoir area.

The highway passes near the Pipe Organ rock formation left of Station 770+00. The new construction will not disturb these landmarks, but there will be a minor amount of clearing of talus material in this area in order to provide for construction of a new access trail and an irrigation pipe.

The character of the area around the Pipe Organ Landslide (Station 890+00) will be altered by the excavation of the face of the quartzite bluff and talus west of the slide area. This excavation is required to widen the narrow corridor providing room for the four-lane Interstate between the railroad, Beaverhead River and the bluff. A river channel change is also necessary in this area. The rock excavated from the bluff will be used to construct the 50 foot high by 1,600 foot long buttress and keyway. The buttress and keyway are necessary to stabilize the Pipe Organ Landslide.

Ramps for small recreational boats in the banks of the Beaverhead River at Station 768+00 and Station 937+00 will provide access for fishermen and other desiring to float the Beaverhead River.

Wildlife will be affected by the additional two-lanes of highway. Since only a minor amount of brush will be removed, the effect on wild bird life should be minimal. Whitetail and Mule deer live in the Beaverhead Valley. Some deer will cross the highway and

since the four-lane highway will present a wider barrier to cross, there will be increased danger of deer and auto collisions. The Department of Fish and Game was contacted and stated that no major game migrations occur within the project limits. They also say that any antelope movements across the roadway have probably already been precluded by the existing highway. Some fish life will be disturbed by the new construction. Riprap will be used at all bridge ends to protect the highway embankment from erosion. A channel change is necessary at the Red Rock River crossing. The contractor will submit a plan of channel change construction to minimize pollution of the stream. A channel change of the Beaverhead River in the area of the Pipe Organ Landslide is necessary due to the narrow corridor that is available in which to build the new highway. Portions of the original channel were filled prior to the landslide since the plan at the time was to relocate the railroad and river. The existing river channel and vegetation in this area will be disturbed only at certain locations where the existing channel is too narrow. It is proposed to provide a two foot wide berm on each side of the channel, about halfway up the side along the channel changes, wherever possible. This berm would allow a space for vegetation such as willows to grow, thus improving the fish habitat. The berm also would provide a walkway for fisherman. The design of the channel change and related features is being coordinated with the Montana Department of Fish and Game. Some riprap will be placed to protect the railroad embankment. Streambank vegetation will be preserved wherever possible. The Contractor will submit a plan of channel change construction and haul bridge construction to minimize pollution of

the river in this area. Roadway slopes have been steepened at Station 948+00 and Station 957+00 to eliminate constriction of the river, but some riprap will be required at Station 948+00.

When the keyway area is excavated in the vicinity of the Pipe Organ Landslide, it is proposed to dewater the excavation by pumping the water and discharging it into the Beaverhead River. A field investigation revealed the possibility of this water being poor quality due to low dissolved oxygen and low temperature. However, the quality of the water at the time of construction and pumping could vary considerably from what has been tested. Provisions will be made with the Contractor to minimize the impact of this pumped water on the Beaverhead River. Requirements of Section 07.11 (b) Siltation Control and 07.11 (c) Water Pollution, of the Montana Department of Highways Standard Specifications shall be observed. A waste permit from the Montana State Board of Health Department will be required. The Department of Fish and Game has been involved in discussions relative to this matter.

B. Adverse Environmental Effects Which Cannot be Avoided

The taking of minor amount of right-of-way is unavoidable.

The character of the area around the Pipe Organ Landslide (Station 890+00) will be altered by the excavation of the face of the bluff west of the slide area. This excavation will be accomplished by the "presplit" method of blasting. Talus from the base of the bluff will be removed and used as roadway embankment or in the buttress. The addition of the rock buttress will also alter the character of the area. This is unavoidable since it is necessary to

provide room for the four-lane Interstate highway.

Some deer will cross the highway, and since the four-lane highway will present a wider barrier for deer to cross, there will be danger of deer and auto collisions. There will be some loss of deer population, however, the loss should be minimal. As previously stated, no major game migrations occur. Flat curves, vertical and horizontal, providing good sight distance along with one-way roadways where the motorists can maneuver are features of the highways that will help reduce accidents.

Some fish life will be affected by the construction of bridges, channel changes and riprap. The effect on the total fish population, however, should not be great. Compliance with the pollution requirements of the Montana Department of Highways Standard Specifications and the Montana State Board of Health regulations will help to minimize the impact of the construction on the fish population. Also, proposed plans of channel change and haul bridge construction submitted by the Contractor prior to construction will help bring to light any possible water pollution problems.

C. Alternatives

One alternative is not to build this project. This would not comply with the National Highway Defense Act and would leave a gap in the Interstate Highway system, more particularly in the I-15 route.

At one time, consideration was given to "Alternate Alignment "A" running behind the quartzite bluff through the saddle. "Alternate A" was reexamined by soil engineers and geologists because

the present alignment requires changes in the Beaverhead River channel and also several hundred thousand yards of excavation in the quartize bluff.

Core samples taken during the 1966 investigation revealed a soft talc layer, thirty feet deep lying at the base of the proposed cut. To ensure stability of the cut, slopes would have to be laid back at 8 horizontal to 1 vertical making the cut about a quarter mile wide at the top. If the slopes were not laid back on such an extremely flat angle, there would be real danger of a landslide comparable in magnitude to the Pipe Organ Landslide. The risk and expense of this cut makes "Alternate A" undesirable.

D. Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

In the vicinity of this project it can be estimated that short-term use as well as the long-term use of the environment of the Beaverhead Valley will be for the most part of an agricultural nature. The construction of this project should not change the agricultural business being conducted in the area at present. As time progresses, more use will be made of the highways and the demand will be greater for roads that provide fast, safe and efficient transportation.

E. Irreversible and Irretrievable Commitments of Resources

The amount of land taken for new right-of-way will be small. Although this land will not be rendered useless, it will no doubt be taken out of production for a long time.

There will be no resources other than normal construction materials irreversibly or irretrievably committed to the project. The land could be returned to its natural state by obliteration of the roadway, if done properly, should the need ever arise.

V. BENEFITS

All people traveling will benefit by having an improved highway that provides faster, safer and more efficient transportation. An improved highway will benefit this area, which is devoted mostly to agriculture, by providing better farm-to-market movements.

The stabilization of the Pipe Organ Landslide will help insure a safer area for the railroad, highway and the general public, as well as perpetuate the flow of the Beaverhead River.

The new rest area at Station 980+00 will benefit the highway user by giving him a place away from the roadway to relax in a beautiful setting. The rest area will be located away from the Interstate near the Beaverhead River. A warm water waterfall can be viewed from the proposed rest area.

VI. MINIMIZING ADVERSE ENVIRONMENTAL EFFECTS

An effort has been made to fit the roadway to the terrain wherever possible. The section of proposed two-lane highway adjacent to the Clark Canyon Reservoir in particular, will be lower than the existing lanes in order to blend with the cross slope of the natural ground as well as to provide a view of the reservoir area for the northbound traveler.

Slope rounding, topsoiling and seeding of disturbed areas are measures that will be taken to minimize environmental damage. Embankment protectors and riprap, where necessary, will be used for protection against erosion. Natural vegetation will be preserved wherever possible. Contour grading will be used on the interchanges to improve their aesthetics.

Enforced compliance with existing laws and specifications concerning water and air pollution will help to minimize environmental damage.

VII. SECTION 4(f) DETERMINATION

The Armstead-North and South project proposes to add two south-bound lanes parallel to the existing two-lane interstate project and will complete a link of the four-lane interstate highway system. Most of the right of way for this project was acquired when the original two-lane right of way was purchased.

The Clark Canyon Dam Recreation Area is located on public land in Section 5, Township 10 South, Range 10 West, or at the northeast end of Hap Hawkins Lake adjacent to the Horse Prairie Interchange. The nearest city is Dillon, Montana, which is 21 miles to the north. The Bureau of Reclamation is the controlling agency of this area, but after completion of the Dam, the camping sites were turned over to the management of the Montana Department of Fish and Game. This recreation area comprises about 16.3 acres and is covered with native grasses. There are no trees in or around this area; although some were planted by the Fish and Game in past years, they all died. This site has been developed to provide 31 open, wood picnic tables, and 18 picnic tables with shelter shades over them. There are also 3 men's and women's outdoor toilets, 3 pumps for drinking water, and one concrete boat ramp to give the people full utilization of the area. Also located near the picnic facilities is a parking area consisting of about 0.72 acres. Although this site was not designed for camping, many pick-ups with campers or cars with camp trailers travelling Interstate 15 pull in this area for overnight stops. There are six campgrounds located around Hap Hawkins Lake, but being adjacent to the Interstate, this site receives the most use.

When the add two-lanes are constructed, the existing access road to the recreation area will become part of the southbound on-ramp from the Horse Prairie Interchange, and a small amount of additional right of way required for this construction. A new access road will have to be constructed to the recreation site and a temporary easement required for this construction. This temporary easement area will revert back to the Bureau of Reclamation when construction is completed.

The Department of Highway's original design proposes to move the access road over and place it as close to the southbound on-ramp as possible. This design would require approximately 1.7 acres of additional right of way and a temporary easement area of 3.9 acres. This design would have very little adverse impact on the recreation area and has been estimated to cost \$47,000 to construct. At a field review with the Bureau of Reclamation and the Fish and Game, this design was considered unacceptable for various reasons. Although this is the same type of access that now exists, the Fish and Game Recreational Director feels it is too direct of an access to a picnic area, and it would be esthetically unpleasing to the users of this area. After the field review, the Department of Fish and Game, in coordination with the National Park Service, developed an alternate design for restoring access to this site. This design would place the access road approximately 100 feet from the dike limits. The additional right of way for the Fish and Game design would be the same as in the original design, but a temporary easement of 5.4 acres would be required to restore access to the recreational facilities. This design would leave enough room between the recreation road and the interstate to plant a tree screen, which would act as a sight and sound barrier from the interstate traffic. There would also be

a slight curve in this access road that would get away from the direct access to the site that was felt to be undesirable in the original design. This access road has been estimated to cost \$45,000 to construct, plus \$4,000 for the tree screen and an irrigation system to water the trees. This much of the design is completely acceptable to the Department of Highways and Federal Highway Administration officials, since it does restore access to the recreation area, it is acceptable to the controlling agency, and it is comparable in cost to the Department of Highways original design. The Department of Fish and Game contend there would be a significant impact on this recreation area by reconstruction of an access road and would require revamping the whole recreation area at an estimated cost of \$31,000. The design by the Fish and Game would have a greater impact on the recreation area than the original design, and a small portion of the parking area would be required to construct this design. (Total area of parking area-.72 acres, Area to be acquired-.28 acres, Remainder left of parking area-.44 acres). In discussions with the Federal Highway Administration, we were informed that if this design were constructed, the Federal participation would be limited to the cost of constructing the access road, the tree screen, and an irrigation system, at the estimated cost of about \$50,000.

A third alternative that was studied was to abandon the present recreation area and develop a replacement site on the westerly side of the dam. After studying this proposal, the Fish and Game estimated it would cost \$116,000 to develop this area in a manner that would compare with the existing site. This alternative was subsequently rejected because the cost exceeded the other alternatives studied.

A fourth alternative is not to build this project; but this would not comply with the National Highway Defence Act, and would leave a gap in the

interstate highway system. Accordingly, the do-nothing alternative is not considered prudent or feasible.

After a comprehensive study of the alternatives, the Department of Highways has tentatively decided to proceed with the original design until furnished details explaining the severity of impact and why highway funds should be used for campground construction as suggested by the Department of Fish and Game. This is being pursued with the appropriate agencies.

Attached is a sketch showing the recreation area of 16.3 acres, the picnic and parking areas, the high water line, the Horse Prairie Interchange, the existing access road to the recreation site, the centerline for the new access road, the additional right of way required, and the temporary easement area required. Also attached are two photographs; the first taken from the top of the dam looking southeast showing the recreation area and the facilities described above, and the second showing the easement area required to construct the new access road.

This design will have the least impact on the site, will not enter any of the recreational facilities, and is comparable to the existing access road. The reason this design was not acceptable to the Bureau of Reclamation, the controlling agency, was because they felt it would enter the core construction of the dam. After further study by the design engineers, it was determined this design would not enter this "zoned" construction area. The design engineers also stated the interstate highway is located on a grade higher than the recreational site and the access road leading down to the area will act as a natural sound barrier from interstate traffic.

It is therefore determined this is the most prudent alternative to restore access to this recreational area, and that all feasible measures to minimize harm have been considered and proposed.

VIII. EXHIBITS



Photograph taken from top of dam looking southeast showing recreation area containing approximately 16.3 acres. This area contains 31 picnic tables out in the open, 18 picnic tables under wooden shades, 3 toilets, 3 water pumps and a boat ramp.



Photograph showing the temporary easement area required to construct the new access road to the recreation area; note that no site improvements are involved.

CONST. PERMIT

EASEMENT

LEFT RIGHT

CLARK CANYON RESERVOIR

REC. RD.

PI. 480+97.0
PC. 479+58.8
PT. 482+33.8
 $\Delta = 13^\circ 45' \text{ LT.}$
 $D = 5^\circ 00'$
 $T = 138.16'$
 $L = 275.0'$
 $R = 1145.92'$
 $S = 0.08 \frac{1}{4}$

I 15-1 I 15-1 8151-38 14 18
(51)37 (38)37

ARMSTEAD NORTH & SOUTH

CLARK CANYON
RESERVOIR

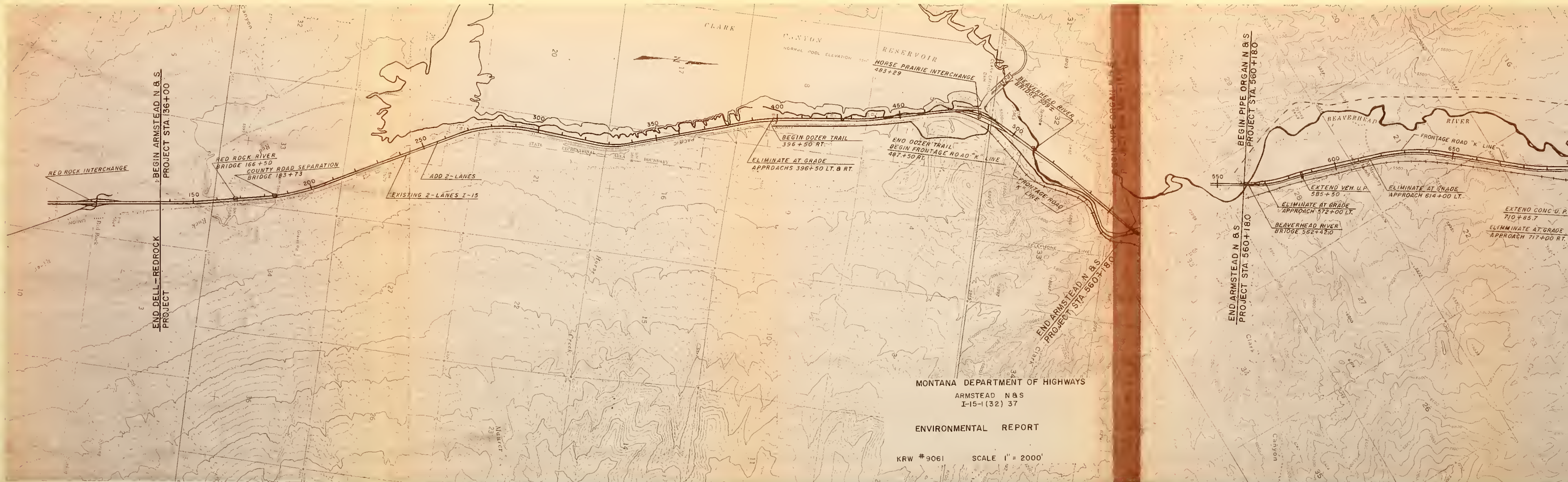
LEGEND

- Guard Posts
- P Privy
- S Shelter
- W Well & Pump
- T Table
- F Fireplace
- I Incinerator

REMOVE EX. A/C FENCE
473+00-490+00 LT.

SEC. 32

HORSE PRAIRIE
INTERCHANGEEXHIBIT
P. 31





BEGIN PIPE ORGAN N & S
PROJECT STA. 560+180

END ARMSTEAD N & S
PROJECT STA. 560+180

END PIPE ORGAN N & S
PROJECT STA. 829+06.3

BEGIN PIPE ORGAN NORTH
PROJECT STA. 829+06.3

EQUA. 1043+23.4 BK=1042+75.6 AH
=468+06.3 AH

BEGIN DILLON N & S
PROJECT STA. 0+00.0

END PIPE ORGAN NORTH
PROJECT STA. 325+24.8

MONTANA DEPARTMENT OF HIGHWAYS
PIPE ORGAN N&S
I-15-1 (31) 46
PIPE ORGAN NORTH
I-15-1 (36) 51

ENVIRONMENTAL REPORT
KRW #9061 SCALE 1" = 2000'

EXHIBIT
P.32

